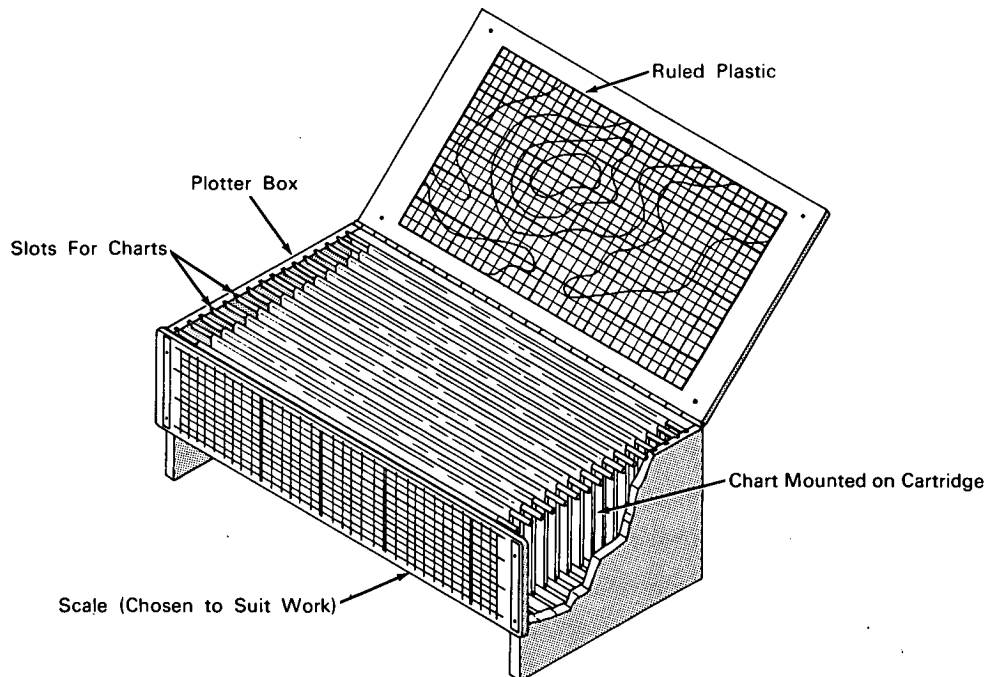


# NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the space program.

## Polychart Contour Plotter Enables Data Extrapolation from Multiple Plotting Charts



**The problem:** Antenna pattern charts are plotted as the antenna is rotated 360 degrees for each 10-degree increment the antenna is tilted from the vertical, or zero degree position. Because the antenna is tilted from zero to 180 degrees, the pattern is plotted on 19 separate charts. Reducing the data to a one-chart form, using conventional overlay methods, has been a time-consuming task.

**The solution:** An inexpensive device, a polychart contour plotter, provides a means of reducing the data from all 19 charts in a single simple operation.

**How it's done:** Each chart is taped on a cartridge or spool so that the rotational coordinates lie along the length of the cartridge, and the power coordinates advance about the cartridge perimeter as it is turned. The charts on their cartridges are placed in the plotter and a sheet of thin, clear plastic is placed over them to provide a working surface. A contour-plot graph is placed on the sheet of clear plastic and secured by tape to prevent its moving. All the rectangular charts are aligned with the grid system of the contour-plot graph. The plotter may be used on any conven-

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tional light table or may be built with an appropriate light source in its base. All charts are rotated to the first indicated power level and one or more closed continuous lines are drawn on the contour-plot graph through points determined by the intersection of the curves on the rectangular charts with the top edges of the cartridges. To plot the next contour line, all charts are advanced to the next indicated power level. A continuous plot is derived by extrapolation between the power levels transferred from the individual charts.

**Notes:**

1. The polychart contour plotter will be found useful in reducing a wide variety of data recorded incrementally on multiple charts.
2. For further information about this innovation inquiries may be directed to:  
Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B64-10406

**Patent status:** NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: Paul M. Swindall and Thomas E. Wise  
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